

California Energy Commission

PIER Buildings Program

PIER Renewables Program

Staff Workshop

Planned Zero Energy New Homes Solicitation

July 13, 2004

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Agenda



- Welcome and Introductions – 9:00-9:15
- California Solar Initiative – 9:15-9:25
- Overview of Planned Solicitation – 9:25-10:30
- Public Comment and Discussion - 10:30-11:45
- Wrap-up and Next Steps – 11:45-12:00



Planned ZENH Solicitation



- Context
- Purpose
- Schedule
- Goals
- Overall Approach
- Expected Tasks
- Teams
- Funding
- Next Steps



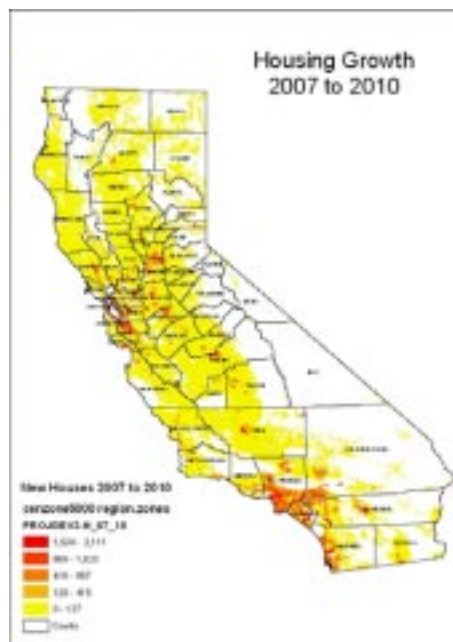
ZENH Solicitation Electricity System Needs



System capacity needs and congestion worsen from
2007 out to 2017



ZENH Solicitation Housing Growth



Significant Housing Growth Will Occur in Hot Inland
Areas Also Impacted With Electricity Issues



ZENH Solicitation Climate Zones



Climate zones 8-13
are the primary focus



ZENH Solicitation Purpose



Purpose

- The purpose of the ZENH solicitation is to facilitate the sustained deployment of “ZENH” in California through research that:
 - Optimizes designs for California climates and conditions that lowers energy use and peak demand in California.
 - Develops and pilots successful and sustainable PV business models that substantially reduce the cost of ZENH to home buyers.



ZENH Solicitation Schedule



Schedule

- Staff Workshop #1 to provide RFP overview and solicit feedback – July 13, 2004
- Staff Workshop #2 to develop PV business models and begin to form partnerships – August 2, 2004
- RFP Release – Approx. 9/1/2004
- Proposals Due – Approx. 11/1/04
- Awards Announced – Approx. 12/16/04



ZENH Solicitation Goals



Goals

■ *Energy Goal:*

- Improve building energy performance by 25% over Title 24
- Reduce net energy consumption by 70%
 - » *70% reduction in electricity bill from a modeled baseline*

■ *Peak Goal:*

- Reduce peak demand to no more than 1 kW

■ *Cost Goal:*

- Reduce the incremental cost to the homeowner of a ZENH to zero
 - » *Is this achievable?*



ZENH Solicitation Overall Approach



Approach

1. Develop ZENH designs that optimize energy efficiency and on-site PV electricity generation to achieve solicitation goals
2. Execute innovative business models to eliminate the incremental cost of a ZENH to the homeowner
3. Pilot ZENH designs and innovative business models in at least one 50+ unit development
4. Monitor and validate performance relative to goals
5. Initiate actions to ensure long-term sustainability of ZENH in CA



ZENH Solicitation

Task 1



Approach

1. Develop ZENH designs that optimize energy efficiency and on-site PV electricity generation to achieve solicitation goals
 - Climate zones 8-13 will be the primary focus
 - In order to meet energy and peak goals, measures beyond those fully recognized in T-24 are encouraged (ducts in conditioned space, natural ventilation, cool roofing, energy efficient lighting, low standby loss appliances, etc)
 - Develop BIPV products that address builder/consumer needs for a variety of roof types and with single service warranty
 - Address issues of consumer preferences and compatibility with builder practices



ZENH Solicitation

Task 2



Approach

2. Execute innovative business models to eliminate the incremental cost of a ZENH to the homeowner. Examples include (but are not limited to):
 - Home builders
 - Local government (ZENH zoning goals, priority plan checking or other development entitlements, streamlined inspection processes)
 - PV manufacturers/Integrators (favorable pricing based on volume commitments)
 - Financing (favorable financing based on community scale commitments)
 - Utilities (rate structures, incentives, design services,)



ZENH Solicitation

Task 3



Approach

3. Pilot ZENH designs and innovative business models in at least one 50+ unit development
 - Demonstrate viability of technical design
 - Demonstrate successful business model implementation
 - Develop branding for ZENH
 - Establish marketing strategies with builders to “sell” ZENH



ZENH Solicitation

Task 4



Approach

4. Monitor and validate performance relative to goals
 - Develop monitoring plan and evaluation protocols
 - Implement measurement and evaluation process
 - Evaluate success in addressing identified technical barriers (such as PV orientation vs. peak or energy performance, installation integrated with common roofing practices)
 - Evaluate successfulness of PV business models
 - Quantify energy, peak and cost savings



ZENH Solicitation

Task 5



Approach

5. Initiate actions to ensure long-term sustainability of ZENH in CA
 - Longer-term partnerships beyond the term of the RFP
 - Training modules for installers and inspectors
 - Builder guides
 - Design guides
 - PV design specifications
 - Other technology transfer products



ZENH Solicitation Teams



**Proposing teams must be a collaboration of entities
with all required skill sets:**

Example team:

- Project director (Management and oversight)
- ZENH design consultants (Technical design)
- Business model developers (Business strategies)
- Demonstration partners (Builders/utilities)
- Monitoring and Evaluation (Technical evaluation)
- Marketing/Tech transfer (Sustaining ZENH in CA)



ZENH Solicitation Funding



Funding

- Goal is to fund a minimum of four proposals covering different optimized design configurations, utility service territories, builders, climate conditions, PV business model strategies
- Funding level would be approx \$2M per proposal
- *Is this appropriate for the expected tasks and outcomes?*



ZENH Solicitation

Next Steps



Next Steps

- Commission will finalize RFP document based on input today
- Proposers will develop business models and form partnerships prior to and concurrent with release of the RFP. Navigant Consulting, Inc. has been retained by the Commission to facilitate this process
- RFP will be released approx. 9/1/04
- Proposals are expected to include preliminary design intent as well as committed partnerships to implement business models.